

WHAT IS CLAIMED IS:

1. A lever-type electrical connector assembly that reduces required connecting mating forces comprising:
 - a first connector including at least one cam follower projection;
 - a base housing for connecting to the first connector, the base housing including a guide channel;
 - a slide cam housing mounted on the base housing and including at least one cam groove and a projection guide track, the slide cam housing extending into the guide channel;
 - and
 - a cover housing having a cover housing projection engaged in the projection guide track, the cover housing pivotally mounted on the base housing.
2. The lever-type electrical connector assembly of claim 1, wherein the guide channel includes a lateral stop to prevent further travel of the slide cam housing.
3. The lever-type electrical connector assembly of claim 1, wherein the at least one cam groove includes a detent portion to prevent further travel of the slide cam housing and to secure the connector assembly in a mated position.
4. The lever-type electrical connector assembly of claim 1, wherein the length of the projection guide track is greater than the diameter of the cover housing projection.
5. The lever-type electrical connector assembly of claim 4, wherein the projection guide track is linear thereby providing a substantially constant mating force as the cover housing is rotated from an unmated position to a mated position.
6. The lever-type electrical connector assembly of claim 1, wherein the assembly is sealed to prevent liquid and vapor penetration.
7. The lever-type electrical connector of claim 1 wherein the slide cam housing includes two opposing slide cam legs and the base housing includes two opposing guide channels such that a respective slide cam leg is received in a respective guide channel.

8. The lever-type electrical connector of claim 7 wherein there are at least two cam grooves formed in each of the slide cam legs of the slide cam, and the slide cam is a single-piece component.
9. The lever-type electrical connector assembly of claim 8, wherein the guide channel includes a lateral stop to prevent further travel of the slide cam housing.
10. The lever-type electrical connector assembly of claim 7, wherein the slide cam housing includes a back wall that protects chambers, terminals, and wires when the cover housing is rotated to a mated position.
11. The lever-type electrical connector assembly of claim 8, wherein the at least one cam groove includes a detent portion to prevent further travel of the slide cam housing and to secure the connector assembly in a mated position.
12. The lever-type electrical connector assembly of claim 8, wherein the length of the projection guide track is greater than the diameter of the cover housing projection.
13. The lever-type electrical connector assembly of claim 12, wherein the projection guide track is linear thereby providing a substantially constant mating force as the cover housing is rotated from an unmated position to a mated position.
14. The lever-type electrical connector assembly of claim 8, wherein the assembly is sealed to prevent liquid and vapor penetration.

15. A lever-type electrical connector assembly that reduces required connecting mating forces comprising:

a first connector including a first cam follower projection and a second cam follower projection;

a base housing for connecting to the first connector, the base housing including a guide channel;

a slide cam housing mounted on the base housing and including a first cam groove, a second cam groove, a projection guide track, the slide cam housing extending into the guide channel; and

a cover housing having a cover housing projection engaged in the projection guide track, the cover housing pivotally mounted on the base housing,

wherein the cover housing is rotated from an open position to a closed position thereby engaging the cover housing projection in the projection guide track to move the slide cam housing from an open to a closed position thereby engaging the first cam follower projection in the first cam groove and further engaging the second cam follower projection in the second cam groove thereby drawing the first connector into the base housing to a connected position.

16. The lever-type electrical connector assembly of claim 15, wherein the guide channel includes a lateral stop to prevent further travel of the slide cam housing.

17. The lever-type electrical connector assembly of claim 15, wherein the first cam grooves and the second cam grooves include a detent portion to prevent further travel of the slide cam housing and to secure the connector assembly in a mated position.

18. The lever-type electrical connector assembly of claim 15, wherein the length of the projection guide tracks are greater than the diameter of the cover housing projection.

19. The lever-type electrical connector assembly of claim 18, wherein the projection guide tracks are linear thereby providing a substantially constant mating force as the cover housing is rotated from an unmated position to a mated position.

20. The lever-type electrical connector assembly of claim 15, wherein the assembly is sealed to prevent liquid and vapor penetration.

21. A method of locking a connection member into secure electrical engagement with a housing member, said method comprising:

inserting the connection member into a housing member, the connection member comprising a first cam follower projection and a second cam follower projection, and the housing member comprising:

a base housing, the base housing comprising a guide channel;

a slide cam housing mounted on the base housing and including a first cam groove, a second cam groove, and a projection guide track, the slide cam housing extending into the guide channel; and

a cover housing having a cover housing projection engaged in the projection guide track, the cover housing pivotally mounted on the base housing,

rotating the cover housing from an open position to a closed position thereby engaging the cover housing projection in the projection guide track; and

sliding the slide cam housing from an open position to a closed position thereby engaging the first cam follower projection in the first cam groove and further engaging the second cam follower in the second cam groove thereby drawing the connection member into the base housing to a connected position.

22. The method of locking a connection member into secure electrical engagement with a housing member of claim 21 wherein the step of sliding the slide cam housing from an open position to a closed position is complete upon sliding the slide cam housing until the slide cam housing reaches a lateral stop.

23. The method of locking a connection member into secure electrical engagement with a housing member of claim 21, wherein the length of the projection guide tracks are greater than the diameter of the cover housing projection.

24. The method of locking a connection member into secure electrical engagement with a housing member of claim 23, wherein the projection guide tracks are linear thereby providing a substantially constant mating force as the cover housing is rotated from an unmated position to a mated position.

25. The method of locking a connection member into secure electrical engagement with a housing member of claim 21, further comprising the step of sealing the connector and the housing to prevent liquid and vapor penetration.